

Defining the chord length at each of the spanwise locations:

Species 41: wherein the leading edge chord length at the plurality of location is proportional to a leading edge device chord length at each location determined to provide a selected

Lift coefficient distribution when the airfoil operates at a selected angle of attack

Species 47: wherein the leading edge chord length at the plurality of locations is proportional to a leading edge device chord length at each location determined to provide a selected

Spanwise distribution of angles of attack that correspond to a lift coefficient when the airfoil is operated at a selected condition

- A Leading Edge Device Arrangement (X)
- A Spanwise portion (B)
- A portion of at least one lead edge device (D)
- A Leading edge device chord length (E)
- A Spanwise location (F)
- A Spanwise distribution of aircraft angles of attack (G)
- A Local Maximum Lift Coefficient (H)
- An Airfoil (I)
- An At least one selected operating condition (J)
- A selected Lift Coefficient Distribution (M)
- At least one selected aircraft angle of attack (N)
- At least one selected DESIGN condition (Q)

Claim 29: (X) coupled to (B), (X) including at least (D), wherein (E) at each (F) is approximately equal to the smallest (E) required to provide (H) when (I) is operated at (Q) and (N)

Claim 35: (X) positioned proximate to (B), wherein (E) at each (F) is approximately proportional to the smallest (E) required to provide (H) when (I) is operated at (Q) and (N)

Claim 41: (X) coupled to (B), (X) including at least (D), wherein (E) at each (F) is approximately proportional to (E) at each (F) determined to provide (M) when (I) is operated at (J) and (N)

Claim 47: (X) coupled to (B), (X) including at least (D), wherein (E) at each (F) is approximately proportional to (E) at each (F) determined to provide (G) corresponding to (H) when (I) is operated at (J)

Claim 29: wherein a leading edge device chord length, is approximately equal to the smallest leading edge device chord length required to provide a local maximum lift coefficient.

Claim 35: wherein a leading edge device chord length at each spanwise location is approximately proportion to the smallest leading edge device chord length to provide a local maximum lift coefficient

Claim 41: wherein a leading edge device chord length at each spanwise location is approximately proportionate to a leading edge device chord length determined to provide A selected Lift Coefficient Distribution when An Airfoil is operated at An At least one selected operating condition and At least one selected aircraft angle of attack

Claim 47: wherein a leading edge device chord length at each spanwise location is approximately proportionate to a leading edge device chord length determine to provide A Spanwise distribution of aircraft angles of attack corresponding to A Local Maximum Lift Coefficient when the An Airfoil is operated at An At least one selected operating condition